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none, the mouth bordered by 5-6 rows of smaller, denser, quadrate cells; walls thin; spores brown, papillose, 18-24 μ in diameter, ripe in winter.

New Providence, Eleuthera, Andros, Great Bahama, Abaco and Acklin's Island. Type from Pinder's Point, Great Bahama, Britton and Millspaugh, 2515. February, 1905. Bahama Hymenostomum.

NEW YORK BOTANICAL GARDEN

LITTLE JOURNEYS INTO MOSSLAND

III.—BRYOLOGIZING IN EARLY SPRING

GEORGE B. KAISER

Early spring is a particularly good time to go moss-hunting. Not only do many of our common species mature their spores at this season, but the as yet scant growth of grasses and other herbaceous plants allows us to more readily see and collect specimens—especially of several very small bryophytes which later more easily escape our attention.

Observe those clayey banks covered with an abundant green felt of protonema and you will see groups of sturdy gray sporophytes, two to three inches high, standing up straight as soldiers, their hair-caps mostly gone and the Polytrichum-like peristome exposed. This moss is *Pogonatum brevicaulis* and, towards the South, on bare sandy banks, one may find the nearly allied *Pogonatum brachyphyllum*, whose leaves and fruiting parts have a decidedly reddish tinge.

Closely examining other clayey or marly banks one may here and there see tiny dark red dots. These dots generally prove to be male plants of *Acaulon rufescens*, showing antheridia clustered amid rosettes of minute leaves with very clear and large cells. The female plants occur far less often and I have collected them but once. This was on a day in March some years ago, when Mr. Chamberlain and I were in a party led by Dr. C. C. Abbott to view the great white oak in the Meeting House grounds at Crosswicks, New Jersey. Our way passed along the then much swollen waters of Crosswicks Creek and to avoid the muddy conditions of the streamside we entered a fallow field. Bryologically this was a fortunate move, for in that field we found three exceedingly interesting dwarfs among the mosses. We were soon upon all fours examining them.

The first one was the afore-mentioned *Acaulon* in fine fruiting condition, displaying round capsules of light brown immersed among the pink-tinted leaves. *Phascum acaulon* (*P. cuspidatum*), the second, was not difficult to differentiate under the handlens. The plants were longer, the capsules not quite so immersed, and the leaves distinctly pointed and twisted.

The third, *Astomum Sullivantii*, was probably the most attractive of the trio, with its evident, glossy, dark-brown capsules appearing among the beautifully twisted leaves. Both the *Phascum* and *Astomum* I have often found

elsewhere at this season and they are neither particularly rare nor hard to discover. Rather bare sandy or clayey soil along roadsides and in fallow fields are likely places to look for them and, like many another moss, when once you become familiar with their appearance and habits you may readily collect them again and again in hitherto unlooked-for places.

It is somewhat the same with *Pleuridium subulatum*, whose "emerald dew-drops," to which Dr. Grout likens their immature fruiting condition, may be picked up in many an old field hereabouts in April. The capsules in this species are immersed and the moss is small, indeed, but the clumps may be several inches square and so abundant that they are truly conspicuous. Near Mt. Gretna, Pennsylvania, one mid-May, we came across a field literally filled with fertile *Pleuridium*, and the dainty tiny plants in myriads, their capsules then quite brown and mature, made a sight not to be forgotten.

The cosmopolitan *Ceratodon purpureus* covers certain sandy areas in southern New Jersey and, during April, the massed purple sporophytes take the sunlight in such a way that they are genuinely colorful and impressive. At the end of April we may collect the ripened capsules and examine the annulus setting free the delicate teeth of the peristome, which, indeed, resemble the slender horns of some imaginary microscopic gazelle. *Mnium cuspidatum* matures at the same time, and on Memorial Day we may expect the ripe capsules of *Pohlia nutans*.

Those curious little urn-like fruits of *Physcomitrium turbinatum*, too, are a frequent vernal sight in the grassy places of our region. The capsules attain maturity irregularly and in the same clump we may see them exhibiting every shade of green, light-brown, and dark chestnut. This moss is most easily determined and it soon becomes a pleasant companion on our May-time excursions.

But of all the mosses of the spring, perhaps the most remarkable is *Buxbaumia aphylla*. I first came to know this little "hump-backed elf," as Mrs. Britton calls it, on a memorable day in April some years ago, when for the first time *Leucobryum glaucum* was found by us in rich fruiting condition. It was at the edge of an old woods near Radnor Hunt, Pennsylvania, and glancing down, I perceived what looked like small glossy brown buds on a shaded bank, accompanied by *Dicranella* and undeveloped plants of the lichen *Cladonia*. Further investigation showed that these "buds," on stalks a half-inch high, were capsules of *Buxbaumia*, which occurred there in considerable numbers. Subsequent finds of *Buxbaumia* along Wissahickon Creek and in the Pocono Mountains have always awakened a thrill, but never quite such a thrill as that first discovery.

What a strange little moss it is! Saprophytic in habit, it occupies among the mosses somewhat the position that the Indian Pipe and Pinesap do in the Heath Family. What has been its history throughout the ages? How has it become different from most of its congeners? Ample food there for thought, for theoretical meditation, and perhaps even for philosophical discussion!

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